OBJECT ORIENTED PROGRAMMING WITH JAVA 8– LAB 3

1. Write a program to store some numbers in an array and find the largest one among them.

Ans=

Code-

```
import java.util.Scanner;
class Arrays
{
        public static void main(String[] args)
        {
        Scanner P=new Scanner(System.in);
        System.out.println("Enter the Numbers: ");
        int n= P.nextInt();
        int[] a=new int[n];

        System.out.println("Enter the elements:");
        for (int i = 0; i < n; i++)
        {
         System.out.println("Element " + ( i + 1) + ": ");
         a[i]=P.nextInt();
        }

         int ln=a[0];
        for(int i= 1; i<n; i++)
        {
         if(a[i] > ln)
         {
           ln=a[i];
         }
        }
         System.out.println("The largest Number: " + ln);
        }
}


// n=numbers, a=arrays, ln=largest number
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>javac Arrays.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>java Arrays
Enter the Numbers:
7
Enter the elements:
Element 1:
15
Element 2:
05
Element 3:
19
Element 4:
98
Element 5:
05
Element 6:
13
Element 7:
11
The largest Number: 98

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```

2. Write a program to find the sum of any 10 numbers stored in an array.

Ans=

Code-

```
import java.util.Scanner;
class Sum
{
        public static void main(String[] args)
        {
         Scanner P= new Scanner(System.in);
         int[] n=new int[10];
         System.out.println("Enter 10 Digits: ");

         for(int i=0; i<10; i++)
         {
          System.out.print("Number " + (i + 1) + " : ");
          n[i]= P.nextInt();
         }
          int s = 0;
          for (int i=0; i<10; i++)
                {
                 s += n[i];
                }
          System.out.println("The sum of 10 digits is :" + s);
        }
}
// n=number,s=sum
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>javac Sum.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>java Sum
Enter 10 Digits:
Number 1 : 156
Number 2 : 148
Number 3 : 156
Number 4 : 568
Number 5 : 568
Number 6 : 526
Number 7 : 025
Number 8 : 258
Number 9 : 654
Number 10 : 56
The sum of 10 digits is :3115

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```

3. Write a program to check whether a particular element is present in the array or not.

Ans=

Code-

```
import java.util.Scanner;
class Numbers
{
        public static void main(String[] args)
        {
         Scanner P= new Scanner(System.in);
         int[] n={1,2,3,4,5,6,7,8,9,10};
         System.out.print("Enter a number for checking :");

         int s=P.nextInt();
         int i;
         for(i = 0; i < n.length; i++)
                {
                 if (n[i] == s)
                {
                 break;
                }
                }
        if (i < n.length)
        {
         System.out.print("Element " + s + "is present in array");
        }
        else
        {
         System.out.print("Element " + s + "is not present in array");
        }
        }
}

//n=numbers, int s=search
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>javac Numbers.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>java Numbers
Enter a number for checking :7
Element 7is present in array
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>java Numbers
Enter a number for checking :11
Element 11is not present in array
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>
```

4. Write a program to concatenate two arrays.

Ans=

Code-

```
import java.util.Arrays;
class Concatenate
{
        public static void main(String[] args)
        {
         int[] a={1,2,3,4,5};
         int[] b={6,7,8,9,10};
         int c=a.length;
         int d=b.length;

         int[] concat = new int[c + d];

         for(int i=0; i < c; i++)
         {
          concat[i] = a[i];
         }
         for(int i=0; i < d; i++)
         {
          concat[c + i]= b[i];
         }

         System.out.println("Concatenate Array: " + Arrays.toString(concat));
        }
}

// a=array1, b=array2, c=a.length, d=b.length.
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>javac Concatenate.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>java Concatenate
Concatenate Array: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>
```

5. Create a class Employee with members empid, empname, designation, salary. Also define two methods to enter the details and display the details. Create an object and invoke the methods.

Ans=

Code-

```
import java.util.Scanner;
       class Employee
         {
          int empid;
          String empname;
          String designation;
          double salary;

          void enterDetails()
         {
         Scanner P=new Scanner(System.in);

         System.out.print("Enter employee ID: ");
         empid =P.nextInt();

         P.nextLine();

         System.out.print("Enter employee name: ");
         empname =P.nextLine();

         System.out.print("Enter designation: ");
         designation =P.nextLine();

         System.out.print("Enter salary: ");
         salary =P.nextDouble();
         }

         public void displayDetails()
         {
          System.out.println("Employee ID: " + empid);
          System.out.println("Employee Name: " + empname);
          System.out.println("Designation: " + designation);
          System.out.println("Salary: $" + salary);
         }
         }

         class Demo
    {
         public static void main(String[] args)
         {
         Employee employee = new Employee();

         System.out.println("Enter employee details:");
         employee.enterDetails();

         System.out.println("\nEmployee details:");
         employee.displayDetails();
    }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>javac Demo.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>java Demo
Enter employee details:
Enter employee ID: 1
Enter employee name: Rushi
Enter designation: IT
Enter salary: 10000

Employee details:
Employee ID: 1
Employee Name: Rushi
Designation: IT
Salary: $10000.0
```

6. Define a class Student with data members rollno, name, mark1, mark2, mark3, total, avg. Use appropriate methods for entering the details and displaying the details. Also define a method for calculating the total mark and average. Create an object for the class and invoke all the methods.

Ans=

Code-

```
import java.util.Scanner;
class Student
        {
         int rollno;
         String name;
         double mark1, mark2, mark3;
         double total;
         double avg;

         void Details()
        {
        Scanner P = new Scanner(System.in);

        System.out.print("Enter roll number: ");
        rollno = P.nextInt();

        P.nextLine();

        System.out.print("Enter student name: ");
        name = P.nextLine();

        System.out.print("Enter mark1: ");
        mark1 = P.nextDouble();

        System.out.print("Enter mark2: ");
        mark2 = P.nextDouble();

        System.out.print("Enter mark3: ");
        mark3 = P.nextDouble();
        }

        void calculateTotalAndAverage()
        {
        total = mark1 + mark2 + mark3;
        avg = total / 3.0;
        }
```

```
    void displayDetails()
    {
    System.out.println("Student details:");
    System.out.println("Roll number: " + rollno);
    System.out.println("Name: " + name);
    System.out.println("Mark 1: " + mark1);
    System.out.println("Mark 2: " + mark2);
    System.out.println("Mark 3: " + mark3);
    System.out.println("Total marks: " + total);
    System.out.println("Average: " + avg);
    }
    }

    class StudentDemo
    {
    public static void main(String[] args)
    {
    Student student = new Student();

    System.out.println("Enter student details:");
    student.Details();

    student.calculateTotalAndAverage();

    student.displayDetails();
    }
    }
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>javac StudentDemo.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>java StudentDemo
Enter student details:
Enter roll number: 21
Enter student name: Krishna
Enter mark1: 75
Enter mark2: 92
Enter mark3: 85
Student details:
Roll number: 21
Name: Krishna
Mark 1: 75.0
Mark 2: 92.0
Mark 3: 85.0
Total marks: 252.0
Average: 84.0

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```

7. Create a class named Rectangle with data members length and breadth. Create methods for entering the details and displaying the details. Create two more methods, one for finding the area and another for finding the perimeter of the rectangle. Create an object for the class and invoke all the methods.

Ans=

Code-

```
import java.util.Scanner;
class Rectangle
{
         double length;
         double breadth;

        void enterDetails()
        {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter length: ");
        length = scanner.nextDouble();

        System.out.print("Enter breadth: ");
        breadth = scanner.nextDouble();
        }
        void displayDetails()
        {
        System.out.println("Rectangle details:");
        System.out.println("Length: " + length);
        System.out.println("Breadth: " + breadth);
        }
        double calculateArea()
        {
        return length * breadth;
        }
        double calculatePerimeter()
        {
        return 2 * (length + breadth);
        }
        }
```

```
        public class RectangleDemo
        {
        public static void main(String[] args)
        {
        Rectangle rectangle = new Rectangle();
        System.out.println("Enter rectangle details:");
        rectangle.enterDetails();
        rectangle.displayDetails();

        double area = rectangle.calculateArea();
        System.out.println("Area: " + area);

        double perimeter = rectangle.calculatePerimeter();
        System.out.println("Perimeter: " + perimeter);
        }
}
```

Execution-

```
C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>javac RectangleDemo.java

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>java RectangleDemo
Enter rectangle details:
Enter length: 15
Enter breadth: 98
Rectangle details:
Length: 15.0
Breadth: 98.0
Area: 1470.0
Perimeter: 226.0

C:\Users\p7pha\OneDrive\Desktop\Cdac DBDA\JAVA\Day 3 & Lab3\Answers>
```